

WE CLAIM:

1. A method of making and screening an array of catalysts, said method comprising:

(a) combining a first polymerization precursor material, a second polymerization precursor material and a first catalyst in a first region on a substrate;

5 (b) combining a first polymerization precursor material, a second polymerization precursor material and a second catalyst in a second region on a substrate;

(c) reacting the first and second polymerization material in said first and second regions; and

10 (d) screening said first and second regions of said substrate for a measurable property or properties.

2. The method of claim 1, wherein first polymerization precursor material and said second polymerization precursor material react to form a polycarbonate; and

15 step (d) comprises screening first and second polycarbonate compositions in first and second regions.

3. The method of claim 1, wherein the first and second catalysts comprise one or more metal salts of differing stoichiometries or composition.

20 4. The method of claim 1, wherein the first and second catalysts comprise 3 metal salts of differing stoichiometries or composition.

5. The method of claim 1, wherein the first and second catalysts comprise 3 metal salts of differing stoichiometries or composition which are the result of three-way combinations of multiple (>3) metal salts.

6. The method as in any one of claims 3 or 4, wherein the metal salts are alkali metal salts, alkaline earth metal salts, transition metal salts or mixtures thereof.

5 7. The method of claim 2, wherein the step of screening comprises measuring fluorescence emission.

8. The method of claim 1, wherein step (a) comprises:

(i) delivering the first catalyst to the first region on the substrate;

(ii) delivering the first polymerization precursor material and the second polymerization precursor material to said first region on the substrate; and

step (b) comprises:

(i) delivering the second catalyst to said second region on the substrate;

and

(ii) delivering the first polymerization precursor material and the second polymerization precursor material to said second region on a substrate.

15 9. The method of claim 8, wherein step (a) occurs before step (b).

10. The method of claim 8, wherein step (a) and step (b) are performed at the same time.

20 11. The method of claim 8, wherein the first polymerization precursor material and the second polymerization precursor material are delivered before the catalyst.

12. The method of claim 8, wherein the first polymerization precursor material and the second polymerization precursor material are delivered after the catalyst.

13. The method of claim 8, further comprising mixing of the first polymerization precursor material and the second polymerization precursor material prior to delivery.

5 14. The method of claim 8, further comprising mixing the first polymerization precursor material and the catalyst prior to being delivered.

15. The method of claim 8, further comprising mixing the second polymerization precursor material and the catalyst prior to being delivered.

16. The method of claim 8, further comprising delivering the first polymerization precursor material before the catalyst and then delivering the second polymerization precursor material.

17. The method of claim 2, wherein the first polymerization precursor material comprises a bisphenol and the second polymerization precursor material comprises a diaryl ester of carbonic acid.

18. The method of claim 17, wherein the bisphenol is bisphenol A and the second polymerization precursor material is diphenylcarbonate.

19. A method of making and screening an array of catalysts, said method comprising:

(a) combining a bisphenol compound, diaryl ester of carbonic acid and a first metal salt catalyst in a first region of a substrate;

20 (b) the bisphenol compound, the diaryl ester of carbonic acid and a second metal salt catalyst in a second region on a substrate;

(c) reacting a bisphenol compound and a diaryl ester of carbonic acid in said first and second regions; and

25 (d) screening said first and second regions of said substrate for a measurable property or properties.

20. The method of claim 19, wherein a bisphenol compound and a diaryl ester of carbonic acid react to form a polycarbonate; and

step (d) comprises screening first and second polycarbonate compositions in first and second regions.

21. The method of claim 19, wherein the first and second metal salt catalyst comprises one or more metal salts of differing stoichiometries or composition.

22. The method of claim 19, wherein the first and second metal salt catalyst comprises 3 metal salts of differing stoichiometries or composition.

23. The method of claim 19, wherein the first and second metal salt catalysts comprise all possible three-way combinations of 4 or more metal salts of differing stoichiometries or composition.

24. The method of claim 19, wherein the metal salt is an alkali metal salt, an alkaline earth metal salt, a transition metal salt or mixtures thereof.

25. The method of claim 20, wherein the step of screening comprises measuring fluorescence emission.

26. The method of claim 19, wherein step (a) comprises:

(i) delivering the first metal salt catalyst to the first region on the substrate;

(ii) delivering a bisphenol compound and a diaryl ester of carbonic acid to said first region on the substrate; and

step (b) comprises:

(i) delivering the second metal salt catalyst to said second region on the substrate; and

(ii) delivering the bisphenol compound and the diaryl ester of carbonic acid to said second region on a substrate.

27. The method of claim 26, wherein step (a) occurs before step (b).

28. The method of claim 26, wherein step (a) and step (b) are performed at the same time.

5 29. The method of claim 26, wherein the bisphenol compound and the diaryl ester of carbonic acid are delivered before the catalyst.

30. The method of claim 26, wherein the bisphenol compound and the diaryl ester of carbonic acid are delivered after the catalyst.

31. The method of claim 26, further comprising mixing the bisphenol compound and the diaryl ester of carbonic acid prior to delivery.

32. The method of claim 26, further comprising mixing the bisphenol compound and the catalyst prior to being delivered.

33. The method of claim 26, further comprising mixing the diaryl ester of carbonic acid and the catalyst prior to being delivered.

15 34. The method of claim 26, further comprising delivering the bisphenol compound before the catalyst and then delivering the diaryl ester of carbonic acid.

20 35. The method of claim 26, further comprising delivering the diaryl ester of carbonic acid before the catalyst and then delivering the bisphenol compound.

36. A polycarbonate article produced by the method of claim 1.

37. A polycarbonate article produced by the method of claim 20

38. The method of claim 1, wherein the substrate forms a rigid support.

39. The method of claim 26, wherein said bisphenol compound is bisphenol A and said diaryl ester of carbonic acid is diphenylcarbonate.

40. The method of claim 2, wherein the step of screening comprises measuring molecular weight.

5 41. The method of claim 20, wherein the step of screening comprises measuring molecular weight.

42. The method of claim 1, wherein the first and second catalysts further comprise an organic co-catalyst.

43. The method of claim 42, wherein said organic co-catalyst is tetramethyl ammonium hydroxide.

44. The method of claim 19, wherein the first and second metal salt catalysts further comprise an organic co-catalyst.

45. The method of claim 44, wherein said organic co-catalyst is tetramethyl ammonium hydroxide.